

Patients' Attitudes and Preferences About Participation and Recruitment Strategies in Clinical Trials

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OBJECTIVE: To assess attitudes of patients about participation in clinical trials.

PATIENTS AND METHODS: This is a self-report survey of 400 patients who underwent general medical evaluations between September and November 2006 at a tertiary care academic medical center in Rochester, MN. We measured knowledge of access to clinical trials, attitudes toward participation, recruitment preferences, and beliefs about research integrity.

RESULTS: Of 485 consecutive patients, 400 (82%) completed the survey. Previous participation in clinical trials was reported by 112 patients (28%). Most were unaware of online information about clinical trials (330 [82%]), were satisfied with their current knowledge (233 [58%]), expected their treating physician to inform them about current trials (304 [76%]), and showed equal interest in participating in conventional or complementary intervention trials (174 [44%]). Of the 400 respondents, 321 (80%) found it appropriate to be contacted by mail and 253 (63%) by telephone regarding study participation. Most patients (364 [91%]) wanted to be informed about research findings or else would not participate in future clinical trials (272 [68%]). The most frequently expected compensation was free parking (234 [58%]). Most thought that their safety (373 [93%]) and privacy (376 [94%]) would be guarded.

CONCLUSION: Patients are interested in participating in clinical trials but commonly lack adequate information. If patients received more information (through their treating physicians), enrollment might improve. This single-site study has limited generalizability. Future studies involving a diverse group of patients from a broader geographic distribution will help provide more definitive results.

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The first randomized controlled trial was published in October 1948.¹ Since then, both the design and analysis of clinical trials have become increasingly complex. Patient participation in clinical research is one of the main challenges faced by researchers today. The scale of the problem is not well documented, but one survey of recruitment that examined a cohort of 41 randomized controlled trials in the United States found that 34% of the trials recruited less than 75% of their planned sample.² The inability to recruit an adequate number of participants reduces the statistical power of the study and often leads to inconclusive results.³⁻⁶

A key yet understudied issue is the attitude of potential participants toward clinical research, particularly clinical trials. One systematic review identified the main barriers to participation in randomized controlled trials as (1) additional demands of a study, including procedures, appointments, travel problems, and cost; (2) preferences of patients regarding a particular treatment or no treatment; (3)

worry caused by uncertainty of treatments or trials; and (4) concerns of patients about information and consent.⁷ However, most of the articles that were reviewed pertained to hospital-based cancer research in the United States.

Two previous studies showed disparate results pertaining to patient attitudes toward participation in clinical trials. A study of outpatients in Denmark showed an overall positive attitude,⁸ whereas a survey in Germany showed a low (25%) willingness to participate.⁹

Since the studies assessing barriers toward clinical trial enrollment have primarily focused on subspecialty patients,⁷ the perspectives of the potential participants within the community remain largely unstudied. A better understanding of the perspectives of participants would likely increase the relevance of research and improve enrollment.¹⁰⁻¹⁴

In this study, we assessed the attitudes of patients about participation and recruitment in clinical trials; their interest in future participation; their preferences about study design, scheduling, and reimbursement; and their beliefs about safety and confidentiality. The study involved a survey of 400 patients who presented for a general medical evaluation at the Division of General Internal Medicine at our tertiary care academic medical center in the mid-western United States.

PATIENTS AND METHODS

This study was designed as a cross-sectional, point-of-care self-report survey. Patients presenting for a general medical evaluation in the Division of General Internal Medicine at Mayo Clinic's site in Rochester, MN, between September and November 2006 were approached by a study coordinator in the waiting room and invited to participate. Patients were given the option to decline.

Survey administration was facilitated by a study coordinator, who was available to answer any questions about the

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TABLE 1. **Baseline Characteristics of 400 Patients Surveyed on Their Attitudes and Preferences About Participation and Recruitment Strategies in Clinical Trials^a**

Characteristic	
Age (y), mean \pm SD (range)	65.9 \pm 13.1 (18-93)
≤ 25	2 (1)
26-50	54 (14)
51-75	246 (62)
≥ 76	98 (25)
Sex	
Male	178 (44)
Female	222 (56)
Distance (miles) between home and Mayo Clinic	
≤ 30	30 (8)
31-60	153 (38)
61-120	143 (36)
>120	73 (18)

^a Values are number (percentage) of patients unless indicated otherwise.

form. The study was approved by the Mayo Clinic Institutional Review Board. Since the survey instrument included no patient identifiers, informed consent was exempted by the institutional review board.

A total of 485 consecutive patients who came in for a scheduled general medical evaluation were invited to participate in the study. Primary inclusion criteria were the ability and willingness of patients to participate. There were no specific exclusion criteria.

SURVEY

The 78-question pencil-and-paper survey (eAppendix online linked to this article) was developed in collaboration with the survey research center at Mayo Clinic. Items on the survey had face validity and had been pilot tested. The survey addressed 5 specific areas: (1) basic demographic information, (2) information from patients about their knowledge of access to clinical trials and their previous participation, (3) attitudes of patients about participating in clinical trials, (4) preferences of patients about the recruitment strategies of clinical trials, and (5) beliefs of patients about the integrity of clinical trials. The survey instrument took approximately 15 to 20 minutes to complete. The response categories varied, depending on the specific question asked. For questions related to personal preferences, 5 response categories (strongly agree, agree, neutral, disagree, and strongly disagree) were provided.

STATISTICAL ANALYSES

Numbers and percentages for categorical variables and mean (SD) for continuous variables were used to summarize the data. Two proportions were compared by the Fisher exact test. Age trends for each question were analyzed by the Mantel-Haenszel test. In all cases, $P < .05$ was considered statistically significant. All statistical analyses were

performed by SAS/STAT version 9.1.3 software (SAS Institute, Cary, NC).

RESULTS

The survey was completed by 400 (82%) of the 485 patients who had a general medical examination in the Division of General Internal Medicine during the 3-month study period. Of the 400 patients who completed the survey, 222 (56%) were women (Table 1). The mean \pm SD age of the respondents was 65.9 \pm 13.1 years (range, 18-93 years). Most of the respondents (326 [82%]) lived within 120 miles of Rochester, MN.

Most of the respondents (330 [82%]) were unaware of online information about clinical trials. Only 27 patients (7%) were aware of the US National Institutes of Health's clinical trials registry (<http://clinicaltrials.gov>), and only 70 (18%) were aware of the clinical trials registry at Mayo Clinic (<http://clinicaltrials.mayo.edu>) (Table 2). However, 233 patients (58%) were satisfied with the status of their current information about clinical trials involving medical conditions of interest to them. Furthermore, 304 patients (76%) stated that they expected their treating physician to inform them about current clinical trials in medicine of relevance to them. Only a small number of patients (112 [28%]) reported that they had previously participated in a clinical trial.

Most respondents (271 [68%]) showed interest (strongly agree or agree) in participating in clinical trials. However, only 97 patients (24%) were interested in participating in trials if the intervention had potential adverse effects. An almost equal number of patients showed a preference for conventional clinical trials vs trials involving complementary and alternative medicine (118 [30%] vs 107 [27%]; $P = .43$), with 174 patients (44%) having no preference. Regarding pharmacological treatments, 191 participants (48%) were interested in investigational drugs, whereas 183 (46%) were interested in dietary supplements and herbal products. For nonpharmacological interventions, the treatments of greatest interest were exercise (232 [58%]), physical therapy (184 [46%]), massage (160 [40%]), acupuncture (124 [31%]), meditation (83 [21%]), yoga (63 [16%]), hypnosis (54 [14%]), and biofeedback (52 [13%]).

Of the 400 respondents, 321 (80%) found it appropriate to be contacted by mail and 253 (63%) by telephone regarding participation in a research project. Most patients did not object to participating in a randomized (250 [62%]) or blinded (226 [56%]) study.

Responses from patients uniformly indicated that they wanted to be informed about the results of the current study (364 [91%]). Furthermore, 272 patients (68%) stated that, if not informed, they would not participate in future clinical trials.

TABLE 2. Positive Responses to Survey Questions Assessing 400 Patients' Attitudes and Preferences About Participation and Recruitment Strategies in Clinical Trials^a

Question ^b	Positive responses ^c
Have you ever participated in a clinical trial?	112 (28)
Were you aware that information about clinical trials can be easily accessed without charge at:	
Clinicaltrials.gov (all US trials)	27 (7)
Clinicaltrials.mayo.edu (Mayo Clinic trials)	70 (18)
I would be interested in participating in clinical trials related to my medical conditions.	271 (68)
I find it appropriate for an investigator to contact me <u>by phone</u> to inform me about a research project.	253 (63)
I find it appropriate for an investigator to contact me <u>by mail</u> to inform me about a research project.	321 (80)
I find it acceptable to be allocated in a <u>random fashion</u> in clinical trials. ^d	250 (62)
I find it acceptable to be allocated in a <u>blinded fashion</u> in clinical trials. ^d	226 (56)
Even if I was told that the treatment prescribed to me in a clinical trial has potential side effects, I would still be interested in participating in the study.	97 (24)
It is important for me to be informed by the investigator about the results of the clinical trial in which I participated.	364 (91)
If I am not informed by the investigator about the results of the clinical trial in which I participated, it is <u>unlikely</u> I will participate in future clinical trials.	272 (68)
If the results of the clinical trial show that the treatment tested does not work, the results are still worthy of reporting or of publication.	343 (86)
I expect my treating physician to inform me about current clinical trials in the medical condition(s) of my interest.	304 (76)
All reasonable precautions for my <u>safety</u> are likely to be taken in a Mayo Clinic-sponsored clinical trial.	373 (93)
All reasonable precautions to protect my <u>privacy</u> are likely to be taken in a Mayo Clinic-sponsored clinical trial.	376 (94)
Clinical trials sponsored by the pharmaceutical companies are likely to have conflict of interest.	226 (56)

^a Values are number (percentage).

^b Wording may vary slightly from that in actual survey for purposes of brevity.

^c Positive responses were "yes" to "yes/no" questions and "agree" or "strongly agree" to questions with Likert scale responses ranging from 1 to 5 as follows: (1) strongly agree, (2) agree, (3) neutral, (4) disagree, and (5) strongly disagree.

^d Question was preceded by information about randomization and blinding.

Participants indicated that they would prefer to travel to Mayo Clinic the first 3 days of the workweek to participate in clinical trials: Monday (167 [42%]), Tuesday (135 [34%]), and Wednesday (151 [38%]). The preferred compensation methods were free parking (234 [58%]), modest monetary compensation (142 [36%]), a meal coupon (133 [33%]), and a donation to charity (89 [22%]).

Patients willing to participate in clinical trials showed great trust in the medical system: 373 (93%) and 376 (94%) thought that all possible measures to ensure their safety and their privacy, respectively, would be taken in a clinical trial conducted by Mayo Clinic. Regarding conflict of interest, 226 (56%) thought that clinical trials sponsored by pharmaceutical companies would likely have conflict of interest.

DISCUSSION

Clinical trials are the principal means for evaluating new treatments in medicine. Although clinical trials aim to provide a high standard of care and help contribute to increased scientific knowledge, only a relatively small proportion of patients receive treatment as part of a formal clinical trial. Our evaluation of patient attitudes about clinical trials showed that 68% were interested in participating; however, 82% were not aware of readily available information about clinical trials specific to their illness and instead expected their treating physician to inform them. Importantly, 91% indicated that they would prefer to be contacted

with the results of the study in which they had participated; if not informed, they were unlikely to participate in future clinical trials. Most patients indicated that they trusted that all possible measures about both their safety and their privacy would be taken in a clinical trial sponsored by Mayo Clinic. Although patients overall showed interest in participating in clinical trials and expressed trust in the medical system regarding how clinical trials are conducted, most of them possessed limited knowledge about the online clinical trials registries.

To our knowledge, this is the first report of a survey of outpatients at a general internal medicine practice in the United States on patient attitudes toward clinical trials. Our findings are similar to those of a Danish study reporting a positive attitude toward medical research participation⁸ but different from those of a German study reporting a relative unwillingness to participate.⁹ The latter finding may be related to the inclusion of surgical and dental trials in the questionnaire in that study, for which participant interest might have been low, or it may be related to regional variations in the attitudes of patients.

Most studies assessing barriers toward enrollment in clinical trials have focused on patients seen by physicians in particular subspecialties⁷ (eg, oncology and cardiology) or have focused on inpatients. In contrast, the current study involved outpatients, and the results, if confirmed by additional studies, might have greater implications for future clinical trials. As the research community learns more

about patients' attitudes and preferences toward clinical trials, the information can be used to formulate measures that improve patient recruitment.

Although studies about attitudes toward clinical trials that have been conducted in subspecialty settings with specific patient groups (eg, patients with cancer) provide information about that specific group, they do not inform us about the attitudes of the average patient seen in general medical practice or about the attitudes of the general population. However, the general population comprises the potential pool of participants for future treatment and prevention studies. Two prior studies^{15,16} focused on the attitudes of adults in the general population who had not been diagnosed as having cancer. Both studies found a strong belief in the benefit of clinical trials for the advancement of medical knowledge, support for the conduct of clinical trials, a substantial willingness to participate in a study, and a belief that study participants would receive the best possible care. In one of those studies, slightly more than half of the respondents said that they would participate in a clinical trial if they were diagnosed as having cancer.¹⁶ As part of the 2000 Cancer Clinical Trial Study, telephone interviews were conducted with a national probability sample of 1000 US adults.¹⁷ The results showed that about 32% of the respondents indicated that they would be very willing to participate in a cancer clinical trial if they were diagnosed as having cancer. Although these studies were targeted at the general population, many of the survey questions concerned cancer clinical trials. Hence, it is difficult to draw direct comparisons or to identify similar results among these previous studies and the current study.

About 45% of the participants in the 2000 Cancer Clinical Trial Study indicated that patients in clinical trials are "treated like guinea pigs." Patients have also expressed ethical concerns about randomized trials in general and about the additional requirements of informed consent for recruitment in clinical trials.¹⁸ In contrast, most of our study participants expressed agreement with the statement that all possible measures for their safety and privacy would be taken in a clinical trial sponsored by Mayo Clinic. To move clinical research forward, the research community must take the necessary steps to gain the confidence and trust of potential research participants.

People in rural settings and those who are members of ethnic minorities might be less receptive to participating in research than other populations.¹⁹⁻²¹ Possible reasons for such reservations include cultural beliefs, lack of knowledge, and personal attitude. Barriers to health care may also prove to be barriers to research participation.¹⁹⁻²¹

Currently, participants in clinical trials are not routinely given information about the aggregate results of those trials

unless it might affect their future care.²² Prior research has shown that many study participants are interested in knowing the results,²³ and some have even stated that there is an ethical imperative to offer results to participants.²⁴ However, several unanswered questions remain about the potential benefits, harm, and cost of providing such information, as well as the best approach to provide such information. Participants in the current study indicated that they wanted to be informed about the results of the study. Furthermore, most of them said that, if they were not provided with the results of a clinical trial in which they had participated, they would not participate in future clinical trials. This finding provides important information for clinical researchers as we continue to study this area in greater depth. In a recent study in which participants in a clinical trial were offered study results, most chose to receive the results, and most reported this as a positive experience.²⁵ Our study participants expressed similar desires.

The primary limitation of the current study is that it was conducted at a single midwestern tertiary care academic medical center in a general practice setting with a relatively homogeneous population of primarily white patients. All this limits the generalizability of our findings. However, 82% of the participants lived within 120 miles of Rochester, MN, which suggests that these patients are from the local community and hence are likely to be representative of the general population. Nevertheless, it would be helpful to conduct a similar study at other institutions to obtain results that have greater generalizability. Another limitation is that the current study was conducted with participants who had chosen Mayo Clinic's site in Rochester for their health care. These participants may be more likely to have a positive attitude about the integrity of clinical research at this institution. This study represents early-phase work but has enabled us to develop an effective survey tool that could be further validated and applied to a range of diverse settings. The results of these subsequent studies will provide more definitive conclusions. The strength of the current study lies in its design, which targeted outpatients receiving routine care in a general medical practice rather than being directed toward a patient group that had recently received a life-changing diagnosis such as cancer or that had recently been hospitalized for a major medical event.

With advances in the understanding of disease and the availability of new compounds with potential therapeutic and preventive applications, an increasing number of clinical research opportunities—preventive, curative, and palliative—will require increasing numbers of participants in clinical trials. Research directed at understanding the attitudes of patients about clinical trials is essential to future efforts in clinical research design and planning.

CONCLUSION

Most of the study patients showed interest in participating in future clinical trials. Participants commonly lacked adequate information about clinical trials and expected their treating physicians to provide this information. Most participants found it appropriate to be contacted by mail regarding participation in a study. The most frequently expected compensation method was free parking. Being informed about results of trials in which they participated was important for participation in future trials. The primary limitation of the study is that it was based on a single-site survey, which decreased the generalizability of findings. Future studies involving a diverse group of patients from a broader geographic region will help provide more definitive results.

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